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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/754,537 | 01/04/2001 | Bernard G. Harter | 3174-000004 | 2550 |

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| EXAMINER |
|---|
| PEREZ, GUILLERMO |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2834 | |

DATE MAILED: 07/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/754,537 | HARTER ET AL. | |
| | Examiner | Art Unit | |
| | Guillermo Perez | 2834 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *12 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *010503* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## DETAILED ACTION

### *Priority*

It is noted that this application appears to claim subject matter disclosed in prior Applications No. 09/817,559, filed March 26, 2001, 09/803,876, filed March 12, 2001, 09/761,125, filed January 16, 2001, 09/824,980, filed April 3, 2001, 09/817,560, filed March 26,

2001, 09/817,687, filed March 26, 2001, and U.S. Patent No. 6,487,769, issued December 3, 2002. A reference to the prior application must be inserted as the first sentence of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e) or 120. See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. Also, the current status of all nonprovisional parent applications referenced should be included.

If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on

which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A priority claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed claim for priority under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

### *Claim Objections*

Claim 5 is objected to because of the following informalities: the number "4" in line 1 needs to be deleted to clarify the dependency, as was done with claim 6. Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

> art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 5, and 15-29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 5, 15, 20, 25, and 29 were amended to include that "*said winding end cap assembly is not located between said winding wire and radial side surfaces of said stator core*", and that "*said end cap assembly is not located between said winding wire and radial side surfaces of said stator segment core*". The application as originally filed does not disclose that the end cap assembly is not located between the winding wire and radial side surfaces of the stator segment core. The application discloses the opposite on pages 9, lines 10-13, page 11, lines 6-8, and page 13 lines 4-6, that the end cap assembly is located between the winding wire and radial side surfaces of the stator segment core.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 5, and 15-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 5, 15, 20, 25, and 29 were amended to include that "*said winding end cap assembly is not located between said winding wire and radial side surfaces of said*

*stator core*", and that "*said end cap assembly is not located between said winding wire and radial side surfaces of said stator segment core*".

It is not clear how the end cap assembly cannot be located between the winding wire and radial side surfaces of the stator segment core, and at the same time be surrounded by the windings and the stator core as disclosed on pages 9, lines 10-13, page 11, lines 6-8, and page 13 lines 4-6 of the application. For purposes of the art rejection, the claims will be interpreted as having portions of the end cap assembly not located between the winding wire and radial side surfaces of the stator segment core (as the end caps 64A, 64B of the application), and portions of the end cap assembly located between the winding wire and radial side surfaces of the stator segment core (as the hubs 102A, 102B of the application).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

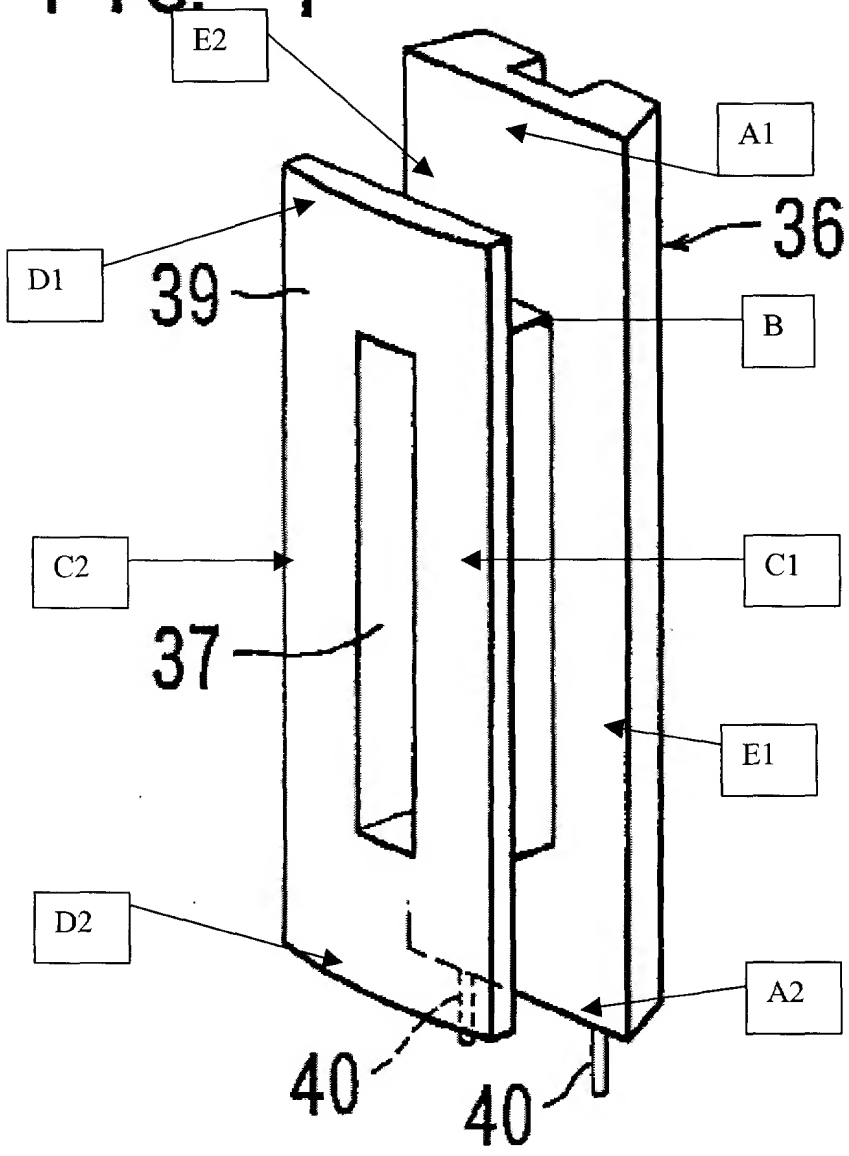
> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-3, 5, 11-12, and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Suzuki et al. (U. S. Pat. 6,166,468).

Referring to claim 1, Suzuki et al. disclose in an electric machine with a circumferentially segmented stator:

- a winding end cap assembly (36) for a stator segment assembly including a stator core (34) that includes a plurality of stator plates that are stacked in an axial direction (column 4, lines 8-10) and that define a stator pole, comprising:
    i. first and second end caps (A1,A2,D1,D2) that are connected to the stator plates of the stator core (34) that are located at opposite axial end surfaces of the stator core (34); and
    ii. a first inner winding retainer section (E1) that extends axially to connect an inner end of the first end cap (A1,D1) to an inner end of the second end cap (A2,D2).

FIG. 7




Referring to claim 2, Suzuki et al. disclose a second inner winding retainer section (E2) that extends axially to connect the inner end of the first end cap (A1,D1) to the inner end of the second end cap (A2,D2).

Referring to claim 3, Suzuki et al. disclose that the first and second end caps (A1,A2,D1,D2) include an outer section (D1,D2), an inner section (A1,A2) and a hub section (B) that connects the outer section (D1,D2) to the inner section (A1,A2).

Referring to claim 5, Suzuki et al. disclose winding wire (38) that is wound around the stator core (34) and the end cap assembly (36), wherein the winding end cap assembly (36) is not located between the winding wire and radial side surfaces of the stator core (at the D1,D2,A1,A2 locations as seen above and in figure 8).

Referring to claim 11, Suzuki et al. disclose that the first and second end caps (A1,A2,D1,D2) and the first and second inner winding retainer sections (E1,E2) define a continuous annular channel that receives winding wire (38).

Referring to claim 12, Suzuki et al. disclose first and second outer retainer sections (C1,C2) that connect the first and second end caps (A1,A2,D1,D2) adjacent to the outer sections of the first and second end caps (A1,A2,D1,D2).

Referring to claim 29, Suzuki et al. disclose a stator segment assembly for a circumferentially segmented stator of an electric machine, comprising:

a stator segment core (34) that includes a plurality of stator plates that are stacked in an axial direction and that define a stator pole of the stator segment assembly that includes first and second side surfaces that extend axially;

an end cap assembly (36) including a first winding retainer section (E1) that extends continuously along the first axial side surface;

a second winding retainer section (E2) that extends continuously along the second axial side surface; and

a third winding retainer section (C1) that extends continuously along the first axial side surface in a position that is radially outside of the first winding retainer section (E1);

a fourth winding retainer section (C2) that extends continuously along the second axial side surface in a position that is radially outside of the second winding retainer section (E2),

a first end cap (A1,D1) that is connected to one end surface of the stator segment core (34) and that is connected to one end of the first winding retainer section (E1); and

a second end cap (A2,D2) that is connected to an opposite end surface of the stator segment core (34) and that is connected to an opposite end of the first winding retainer section (E1); and

winding wire (38) that is wound around the stator segment core (34) and the first and second end caps (A1,A2,D1,D2) and that is retained by the first winding retainer section (E1), wherein

the end cap assembly (36) is not located between the winding wire (38) and radial side surfaces of the stator segment core (34 at the D1,D2,A1,A2 locations as seen above and in figure 8).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 4, 6-8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. in view of Trago et al. (U. S. Pat. 5,806,169).

Suzuki et al. substantially teaches the claimed invention except that it does not show that the winding end cap assembly is made of a magnetically insulating material and the electric machine is a switched reluctance electric machine.

Trago et al. disclose that the winding end cap assembly (71,90) is made of a magnetically insulating material (column 8, lines 5-7) and the electric machine is a switched reluctance electric machine (column 4, lines 51-62). The invention of Trago et al. has the purpose of insulating the winding from the magnetic core.

It would have been obvious at the time the invention was made to modify the stator of Suzuki et al. disclose and provide it with the insulating material in a switched reluctance electric machine disclosed by Trago et al. for the purpose of insulating the winding from the magnetic core.

Referring to claim 10, no patentable weight has been given to the method of manufacturing limitations (i. e. molded) since "even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe,* 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

3. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. in view of McCoy (U. S. Pat. 4340829).

Suzuki et al. substantially teaches the claimed invention except that they do not show that the outer section of the first end cap receives first and second terminals for connecting opposite ends of winding wire.

McCoy discloses that the outer section of the first end cap receives first and second terminals (56) for connecting opposite ends of winding wire (72). McCoy's invention has the purpose of providing support to the wires of the stator windings.

It would have been obvious at the time the invention was made to modify the stator of Suzuki et al. and provide it with the end cap terminal configuration disclosed by McCoy for the purpose of providing support to the wires of the stator windings.

4. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. in view of Searle (U. S. Pat. 4,350,914).

Suzuki et al. substantially teaches the claimed invention except that they do not show that the outer section includes a cavity. Suzuki et al. does not disclose that the outer section includes a groove on a radially outer surface thereof.

Searle discloses that the outer section includes a cavity (22). Suzuki et al. does not disclose that the outer section includes a groove (20) on a radially outer surface thereof. Searle's invention has the purpose of molding by injection techniques.

It would have been obvious at the time the invention was made to modify the stator of Suzuki et al. and provide it with the cavity and groove disclosed by Searle for the purpose of molding by injection techniques.

5. Claims 15-17, 19-22, and 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazama et al. (U. S. Pat. 6,226,856) in view of Trago et al. (U. S. Pat. 5,806,169).

Kazama et al. discloses a stator segment assembly (figure 16) for a stator of an electric machine comprising:

a stator segment core (7) for a segmented stator that includes:

- a plurality of stator plates that are stacked in an axial direction and that define:
    i. a radially outer rim section, and
    ii. a tooth section that extends radially inwardly from a center portion of the radially outer rim section;

an end cap assembly (27) that defines:

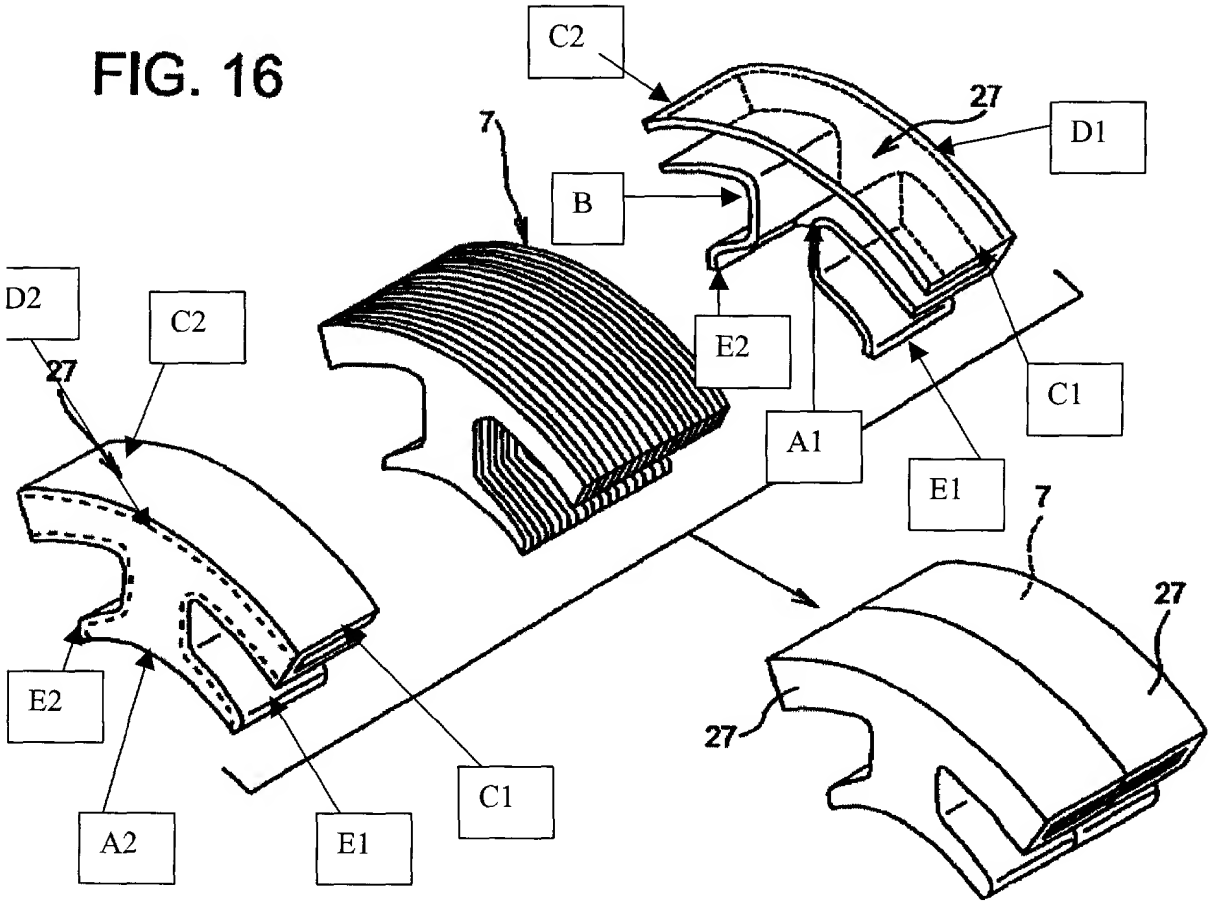
- a continuous annular channel and that includes:
    i. first and second end caps (A1,A2,D1,D2) that are positioned adjacent to the stator plates that are located at opposite axial end surfaces of the stator segment core (34) and
    ii. first and second inner winding retainer sections (E1,E2) that extend axially to connect inner ends (A1,A2) of the first and second end caps (A1,A2,D1,D2) together, wherein

the first and second inner winding retainer sections (E1,E2) engage inner ends of the tooth section; and

winding wire that is wound around the stator segment core (7) and the first and second end caps (A1,A2,D1,D2); wherein

the end cap assembly (27) is not located between the winding wire and radial side surfaces of the stator segment core (7).

FIG. 16




Kazama et al. discloses that the first and second end caps (A1,A2,D1,D2) include an outer section (D1,D2), an inner section (A1,A2) and a hub section (B) that connects the outer section (D1,D2) to the inner section (A1,A2). Kazama et al. discloses

first and second outer retainer sections (C1,C2) that connect the first and second end caps (A1,A2,D1,D2) adjacent to the outer sections of the first and second end caps (A1,A2,D1,D2). Kazama et al. discloses insulation (B) that is located between the winding wire and the stator segment core (7).

However, Kazama et al. does not show that the electric machine is a switched reluctance electric machine.

Trago et al. disclose that the electric machine is a switched reluctance electric machine (column 4, lines 51-62). The invention of Trago et al. has the purpose of reducing the cost of assembly of motors in general.

It would have been obvious at the time the invention was made to modify the stator of Kazama et al. and provide it in a switched reluctance electric machine disclosed by Trago et al. for the purpose of insulating the winding from the magnetic core.

6. Claims 18 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazama et al. in view of Trago et al. as applied to claim 20 above, and further in view of McCoy (U. S. Pat. 4,340,829).

Kazama et al. and Trago et al. substantially teaches the claimed invention except that they do not show that the outer section of the first end cap receives first and second terminals for connecting opposite ends of winding wire.

McCoy discloses that the outer section of the first end cap receives first and second terminals (56) for connecting opposite ends of winding wire (72). McCoy's invention has the purpose of providing support to the wires of the stator windings.

It would have been obvious at the time the invention was made to modify the stator of Kazama et al. and Trago et al. and provide it with the end cap terminal configuration disclosed by McCoy for the purpose of providing support to the wires of the stator windings.

### *Response to Arguments*

Applicant's arguments with respect to claims 9, and 13-28 have been considered but are moot in view of the new ground(s) of rejection.

In response to Applicant's remark that Suzuki does not disclose that the stator core includes stator plates that are stacked in an axial direction, it must be noted that Suzuki discloses those features as an alternative configuration in column 4, lines 8-10.

In response to Applicant's remark that Suzuki does not disclose the connection of the end caps to the stator plates that are located at opposite axial ends of the stator core, it must be noted that since the plates in Suzuki are stacked in the axial direction the end caps are connected to the stator plates that are located at opposite axial ends of the stator core.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Refer to other art in the Notice of References Cited.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guillermo Perez whose telephone number is (703) 306-5443. The examiner can normally be reached on Monday through Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308 1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305 3432 for regular communications and (703) 305 3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

Guillermo Perez
July 10, 2003

KARL TAMAI
PRIMARY EXAMINER